

DESCRIPTIONS OF SOME NEW SPECIES OF SQUILLA FROM SOUTH AUSTRALIA.

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Plate II.

With the aid of Mr. Mier's* "Revision of the Genera and Species of the Squillidæ," I have undertaken with some confidence an examination of the Australian species preserved in the South Australian Museum. These are, with one exception (*Gonodactylus graphurus*, from Edgcombe Bay, Queensland), from the tropical and extra-tropical waters of our province, and are as follows:—

SPECIES FROM THE NORTHERN TERRITORY.

1.—*Squilla raphidea*, Fabricius.

The only example in the collection, which is from the Northern Territory (probably Port Darwin), I have identified with *S. harpax*, De Haan,† placed by Mr. Miers as synonymic with the Fabrician species here named. *S. raphidea* has hitherto been unrecorded for Australia, though it is known from various parts of the Indo-Pacific region. The Port Darwin specimen measures $7\frac{1}{2}$ inches in length.

2.—*Gonodactylus chiragra*, Fabricius.

Many examples from the Northern Territory, probably Port Darwin, whence I have seen several specimens in the collection of Mr. W. T. Bednall, by whom they were taken.

3.—*Gonodactylus graphurus*, White.

Two examples from the Northern Territory, probably Port Darwin.

The following are also known from Port Essington:—*Lysiosquilla acanthocarpus*, Miers; *Chloridella microphthalma*, M.-Edw.; and *Squilla scorpio*, Latreille.

SPECIES FROM SOUTH AUSTRALIA.

Mr. Haswell had evidently not been aware of the occurrence of any member of the Squilla family in South Australian waters, as in his "Australian Crustacea" not one of the species

* "On the Squillidæ," in *Annals Mag. Nat. History* 5, vol. 5; 1880.

† "Fauna Japonica, Crustacea," p. 222, t. li., fig. 1; 1850.

has assigned to it a South Australian habitat; indeed, our knowledge of the existence of representatives of the family off the whole of the south coast of the continent is limited to *Squilla miles*—a Victorian example of which is in the British Museum. Under these circumstances it is with much satisfaction that I have to report the presence of three species in our much-neglected field of carcinographical research.

These species are, moreover, diagnostically unknown, and I propose to describe them under the names of *Squilla pectinata*, *S. inornata*, and *S. subfasciata*. They agree in one character, namely, that the anterior margin of the penultimate joint of the raptorial limb is furnished throughout its whole length with close-set comb-like teeth. This character is entirely foreign to the genus, though present in *Chloridella* and some species of *Lysiosquilla*. My *S. subfasciata* makes some approach to *Chloridella*, but the generic characters are those proper to *Squilla*.

Following the analytical scheme of Mr. Miers, I have in the subjoined schedule brought the three South Australian species into correlation with others of the genus.

- A. Exposed thoracic and first five abdominal segments, with submedian carinæ on the dorsal surface.
- I. Penultimate joint of the raptorial limbs without a series of immobile spines.
 - II. Penultimate joint of the raptorial limbs with immobile spines (or denticulations) along its whole length.
 - * Armature of penultimate joint spinous, as in *S. raphidea*.
 - ** Armature of penultimate joint consisting of denticles, in addition to the mobile spines.
 1. Dactyli of raptorial limbs armed with four spines; antero-lateral angles of carapace rounded *S. pectinata*
 2. Dactyli of raptorial limbs with six spines; antero-lateral angles of carapace spinous *S. inornata*
- B. Exposed thoracic and first five abdominal segments with the dorsal surface smooth.
- I. Dactyli of raptorial limbs with six spines; antero-lateral angles of carapace spinous.
 1. Penultimate joint of the raptorial limbs without immobile spines *S. fasciata*
 2. Penultimate joint of the raptorial limbs margined with close-set denticles ... *S. subfasciata*

Squilla pectinata, *spec. nov.*

Species name in allusion to the comb-like front margin of the penultimate joint of the raptorial limbs.

Carapace in the form of a truncated isosceles triangle, with the sides nearly straight, and the angles rounded; length, 1·05, breadth at base, ·85, breadth at front, ·5 of an inch; smooth, very convex in the middle, with the sulci deep and prolonged to the cervical suture. Posterior to the cervical suture are two lateral carinæ on each side. Rostrum semi-oval, as long as broad—0·15 of an inch—partially covering the ophthalmic segment. The exposed thoracic and the first five abdominal segments ornamented with two submedian carinæ, and a lateral carina on each side. The first five abdominal segments have in addition two lateral carinæ inferior to the first on each side; the postero-lateral angles spinulate. The sixth abdominal segment has two submedian and four lateral carinæ, each terminating in a strong spine.

The telson has seven acute longitudinal crests and a few sub-marginal carunculations, more or less confluent; the median crest terminates in a spine, and the crest on either side of the median one has a few spinulose serrations towards the extremity. The margin is produced into two submedian triangular spines and four lateral spines, the spaces between the submedian and the first lateral spines with about ten strong serratures. The basal prolongation of the uropoda is margined on the inner side with narrow and acute spines gradually increasing in length; the inner of its two elongated terminal spines is slightly longer, and is notched on its outer margin near to the extremity.

The dactyli of the raptorial limbs have four spines, the terminal one more than half the length of the dactylus. Penultimate joint armed on its anterior and superior margin with close set comb-like teeth; there are a few unequal-sized mobile spines in the grooved front of the same joint. The appendages to the thoracic limbs are styliform; the lateral processes of the first exposed thoracic segment is narrow, straight, and acute; those of the following are truncated laterally with rounded angles.

Length of the body, $4\frac{1}{2}$ inches; greatest breadth, 1 inch.

The colour of the specimens preserved in spirit is pale-horn, the costæ and margins of the carapace and thoracic and abdominal segments dark-coloured.

Locality.—Port Adelaide Creek and St. Vincent's Gulf (*S. Aust. Mus.*, three specimens); Fowler's Bay (*Mrs. A. Richards*, one specimen).

Squilla inornata, spec. nov.

Species name in allusion to the unornamented telson.

Carapace with the base much arched, the postero-lateral angles rounded and backward produced, sides slightly excavated, front margin sinuous, the antero-lateral angles are armed with a short spine; median longitudinal diameter, $\cdot 51$, breadth of base, $\cdot 4$, breadth of front, $\cdot 125$ inch. There are three longitudinal carinae, which are interrupted by the distinctly marked cervical suture, posterior to which, the median carina is bipartite anteriorly and terminates in a spinule.

Rostrum oblong, a little longer than wide, with the lateral margins slightly raised, there is no median ridge; it reaches to the base of the ophthalmic segment.

The exposed thoracic and first six abdominal segments are ornamented with six longitudinal carinae; all the carinae of the fifth and sixth, the laterals of the fourth, and the inferior laterals of the third and second abdominal segments terminate in spinules; the postero-lateral angles of the first five abdominal segments spinulose.

The telson is smooth on its upper surface, but is provided with a median crest ending in a spinule; its margin is prolonged into two submedian spines and two laterals on each side. The deep notch between the submedian spines has on each side four blunt denticulations; between the submedian and superior lateral spines there are eight comb-like denticulations.

The distal prolongation of the basal part of the uropoda is armed on the inner edge with minute serratures, and terminates in two unequal spines, the inner one of which is the longer and is armed with a spinule on its outer edge.

The dactyli of the raptorial limbs have six spines, the terminal one half the length of the joint. The penultimate joint much compressed, its anterior edge denticulated through its length; a few mobile spines arise from the marginal groove.

The appendages to the thoracic limbs are styliform. The lateral processes of the exposed segments are bilobate; the anterior lobe of the first of the exposed segments is elongated, curved forward, and acute; in those of the second, third, and fourth exposed segments the posterior lobe is the larger.

Length of body, two and a half inches.

Colour in spirit, greenish-brown.

Locality.—St. Vincent's Gulf (*S. Aust. Mus.*, two examples.)

In general appearance *S. inornata* resembles *S. Dufresnii*, Miers (loc. cit., t. 2, f. 8), but differs in the pectinated margin of the penultimate joint of the raptorial limbs, in the shape of the rostrum, and in the lateral processes of the ex-

posed thoracic segments. In this last character our species resembles *S. nepa*.

Squilla subfasciata, *spec. nov.*

Species name to indicate its affinity with *S. fasciata*.

Carapace smooth, with a faint lateral carina on each side, widening posteriorly; very convex in the middle, with the sulci deep, and produced to the posterior margin; antero-lateral angles armed with a spine; postero-lateral angles broadly rounded; posterior margin strongly arched. Rostral plate truncatedly trigonous, a little longer than broad, reaching to the base of the ophthalmic segment.

The exposed thoracic and the first five abdominal segments have their medio-dorsal surfaces convex, smooth, but are faintly marked with a lateral carina on each side, whilst the abdominal segments have a stronger carina on each side inferior to the other. The postero-lateral angle and the inferior carinæ of each abdominal segment end in spinules. On the sixth abdominal segment the submedian as well as the lateral carinæ are present and end in spines.

The telson is much broader than long, and is ornamented with a median acute crest, spinous at the end, and about six ridges on each side. The margin is prolonged into six acute teeth, between which are a number of smaller spiniform teeth.

The basal prolongation of the uropoda is armed on its inner edge with narrow and acute spines gradually increasing in length; the inner of its two elongated terminal spines is the longer, and armed with an acute tooth on its outer margin.

The dactyli of the raptorial limbs are six-spined, gradually increasing in size. The anterior margin of the penultimate joint is pectinated throughout its length, and carries on the inferior face a few mobile spines. The appendages of the three post-thoracic limbs are linear-spathulate, flat. The first exposed thoracic segment is not laterally produced, but is armed with a spinule on each side; the following segments are successively broader, scarcely laterally produced, and rounded on the sides.

Length of body, two and one-fourth inches; greatest breadth, one-fourth inch. Colour in spirit, pale straw.

Locality.—St. Vincent's Gulf (*S. Aust. Mus.*, one example).

S. fasciata has much resemblance to *Chloridella microphthalmia*; and differs from *S. fasciata* only in its pectinated penultimate joint of the raptorial limbs, in the arched posterior margin of the carapace, and in the truncated apex of the rostral plate.

EXPLANATIONS TO PLATE II.

- Fig. 1.—*Squilla subfasciata*: *a*, carapace; *b*, dactylus and penultimate joint of raptorial limb; *c*, telson; *d*, basal prolongation of uropoda.
- Fig. 2.—*Squilla pectinata*: *a*, carapace; *b*, dactylus and penultimate joint of raptorial limb; *c*, telson and sixth abdominal segment; *d*, lateral view of exposed thoracic segments.
- Fig. 3.—*Squilla inornata*: *a*, dactylus and penultimate joint of raptorial limb; *b*, telson; *c*, lateral view of exposed thoracic segments.
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